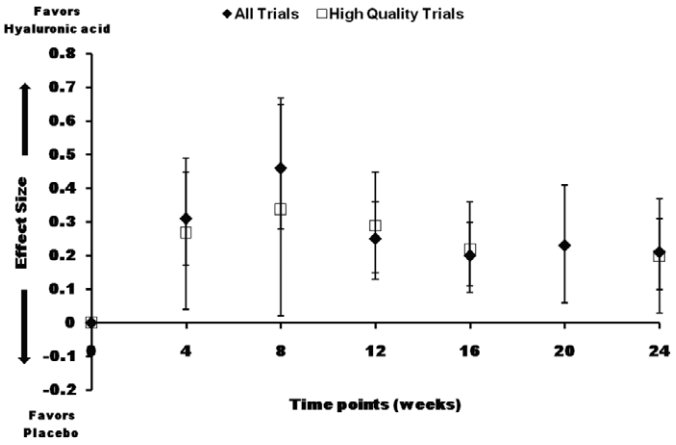

Figure 1. Graph depicting the effect sizes (95% CI) for pain.

or in combination with other therapies. These data should predicate a re-evaluation of its overall cost-utility.

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THE IMPACT OF INTRA-ARTICULAR HYALURONIC ACID ON GAIT VARIABILITY IN KNEE OSTEOARTHRITIS PATIENTS

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Purpose: Our objective was to collect pilot data on the effect of intra-articular hyaluronic acid (HA) treatment on the gait variability of knee osteoarthritis (OA) patients. The degenerative knee changes, pain, and loss of function associated with knee OA can lead to a less stable walking pattern, increasing the risk for falling. Gait variability, specifically high stride time (StrTM), single support time (SSTM), and base of support (BSup) variability, has been shown to predict falls, and is associated with mobility decline and disability. Intra-articular HA knee injections are used to control pain in knee OA patients; however, evidence on the effect of HA on spatio-temporal gait performance is limited. We hypothesized that knee OA patients treated with HA would experience greater reductions in pain and gait variability than matched controls receiving placebo injections (P).
Methods: Thirty older adults with mild to moderate radiographically diagnosed knee OA were equally randomized to receive 3 consecutive weekly knee injections of 2 ml HA (20 mg of HA) or 1.2 ml P (0.001 mg of HA). Fast gait characteristics were determined with a 10 metre electronic walkway (GAITRite System), and clinical outcomes of knee pain, stiffness, and physical function were assessed using the WOMAC OA Index. Gait variability was determined by calculating the coefficient of variation (CoV) for each of StrTM, SSTM, and BSupp. Treatment effects were determined by comparing baseline outcomes to those three (3m) and six months (6m) post-treatment, using repeated measures ANCOVA, controlling for baseline fear of falling.
Results: The participants were [Mx (SD)] 72.44 (6.11) years old and all lived within the community. The StrTM, SSTM, and BSup CoV of the HA group remained relatively unchanged throughout the study, while these same measures of gait variability increased for the P group, with the greatest increases observed at 6m. However, there were no significant differences between the HA and P groups regarding the CoV for StrTM [Mean difference (95%CI)] [0.25 (0.70; - 0.20)], SSTM [0.48 (1.35; - 0.39)], or BSup [0.87 (6.77; - 5.03)]. The HA group experienced greater reduction in WOMAC scores than the P group, however, there were no significant differences between the HA and P groups regarding the WOMAC subsections of pain [2.27 (4.75; - 0.22)], stiffness [0.80 (1.78; - 0.18)], and physical function [6.63 (14.35; - 1.10)].
Conclusions: The results of this small sample study demonstrate that gait variability in knee OA patients was not reduced with intra-articular HA treatment. However, the trends observed in the results indicate that when compared to intra-articular P, intra-articular HA may maintain gait function in knee OA patients by preventing further increases in gait variability, particularly in StrTM and SSTM variability. Since gait disturbances are important risk factors for falling, these preliminary results provide rationale for further investigation in a larger trial assessing the effect of intra-articular HA on gait variability, and in reducing the risk of falling and mobility decline in the elder knee OA population.

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A COMPARISON OF THE BENEFITS AND LIMITATIONS OF GUIDANCE BY ULTRASOUND FOR INTRA-ARTICULAR HYALURONIC ACID INJECTIONS FOR OSTEOARTHRITIS OF THE KNEE BETWEEN THE LATERAL AND MEDIAL PATELLAR APPROACHES

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Purpose: Although guidance for injections conducted by real-time fluoroscopic imaging is useful to increase the accuracy rates of intra-articular (IA) hyaluronic acid (HA) injections for osteoarthritis (OA) of the knee, this imaging implies a certain dosage of radiation to the patient. Qvistgaard et al (Osteoarthritis Cartilage. 2001) and Im et al (J Ultrasound Med. 2009) reported the feasibility of guidance using ultrasound (US) for IA injections in the knee through lateral and medial patellar approaches, respectively (Figure 1). This study was designed to compare the accuracy rates and visual analogue scale (VAS) for the highest subjective severe pain during an injection by a orthopaedic surgeon who was beginner in the use of US between the two approaches reported by Qvistgaard et al (Q) and Im et al (I).

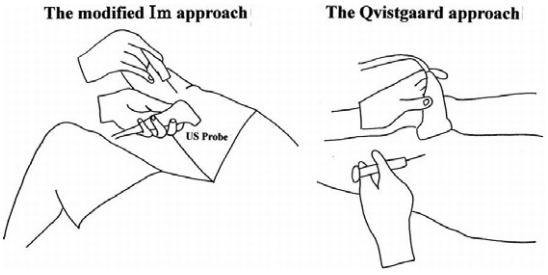

Figure 1

Methods: Eighty patients diagnosed with 'dry' knee OA with no clinically detectable effusion received HA injections through the Q and I approaches. A volume of 0.5-1 ml of asmospheric air was injected with simultaneous recording of US signals on the B and M modes. Once IA positioning of the needle was considered adequate, HA was injected and lateral radiographs were taken 10 minutes later. Successful injections were confirmed by a sharply defined shadow of air on the radiograph. A research nurse who was blind to the objectives of the study asked the participants to assess the VAS during injection, after each injection.
Results: The accuracy rates through I approach (78 out of 80, 97.5%) were significantly higher than those through Q approach (70 out of 80, 87.5%), (P=0.032). However, the VAS during injection through the Q approach (31.8±21.1%) was significantly lower those through the I approach (39.1±20.2%), (P=0.028).
Conclusions: In the Q approach, the straight surface of the US probe was not fit to the arc surface of thigh and the direction of the needle at the insert site was unclear, so the accuracy rates were lower, compared with those of the I approach. In the I approach, the needle punctured through retinaculum tissue to reach the IA space and thus the VAS during the injection was higher, compared with those of the Q approach.

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VISCOSUPPLEMENTATION FOR THE TREATMENT OF HIP OSTEOARTHRITIS

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Purpose: Viscosupplementation is recognised as a valid treatment for osteoarthritis and long-term results of hyaluronic acid infiltration therapy reported in literature have encouraged the drug's ever greater use in a growing number of joints. The aim of our study was to determine the efficacy and safety of viscosupplementation with synthetic hyaluronic acid to the hip joint.